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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/904,067	07/11/2001	Asad M. Madni	09081.0005	1896

7590 04/03/2003

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[REDACTED] EXAMINER

DAVIS, OCTAVIA L

[REDACTED] ART UNIT [REDACTED] PAPER NUMBER

2855

DATE MAILED: 04/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.



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## Office Action Summary

Application No.  
09/904,067

Applicant(s)

Madni et al

Examiner

Octavia Davis

Art Unit

2855



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

1)  Responsive to communication(s) filed on Sep 9, 2002

2a)  This action is FINAL. 2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

### Disposition of Claims

4)  Claim(s) 1-8 is/are pending in the application.

4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 1-8 is/are rejected.

7)  Claim(s) \_\_\_\_\_ is/are objected to.

8)  Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

11)  The proposed drawing correction filed on \_\_\_\_\_ is: a)  approved b)  disapproved.

12)  The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. § 119

13)  Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a)  All b)  Some\* c)  None of:

1.  Certified copies of the priority documents have been received.

2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\*See the attached detailed Office action for a list of the certified copies not received.

14)  Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

### Attachment(s)

15)  Notice of References Cited (PTO-892)

18)  Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_

16)  Notice of Draftsperson's Patent Drawing Review (PTO-948)

19)  Notice of Informal Patent Application (PTO-152)

17)  Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_

20)  Other: \_\_\_\_\_

Serial Number: 09/904, 067

Art Unit: 2855

2/23/03

## DETAILED ACTION

### *Claim Objections*

1. Claim 1 is objected to because of the following informalities: On line 11, insert a comma after "plane". On line 18, delete the period and insert a comma.  
Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1 - 8 are rejected under 35 U.S.C. 112, 2nd paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as his invention.

In claim 1, lines 7 - 9, the portion "a pair of first and second apertured conductive disks....said cage shielding portions of said spokes of said dielectric disk in proportion to applied shaft torque" is unclear, on lines 11 - 12, the portion "lying in

a common plane one ring having a greater diameter than the other encircling said first shaft...." is unclear and on line 18, " aid first shaft half " is unclear.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1 - 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Montagu et al in view of Kovacich et al and Takahashi.

Regarding claims 1 and 4 - 6, Montagu et al disclose a capacitive transducer system comprising a dielectric member 7 having a circular disk shape and including non-truncated segment portions 16, the dielectric member mounted for rotation with a first half of a shaft 9, a pair of sensor plates 1, 2 encircling a first half of the shaft, an opposed capacitor plate 4 encircling the second shaft half, a ring capacitive plate member 8 encircling the shaft and circuitry means ( See Cols. 5 - 7, lines 63 - 67, 1 - 2 and 17 - 50 ) for comparing the capacitances formed between the pair of sensor plates and the opposed capacitor plate but does not disclose a pair of first and second

apertured conductive disks caging said dielectric disk and mounted for rotation with the second half of the shaft, a pair of concentric capacitor plate rings lying in a common plane encircling the first half of the shaft and juxtaposed with the first apertured conductive disk and an opposed capacitor plate encircling the second shaft half and juxtaposed with the second apertured conductive disk, each aperture of the respective conductive disk arranged in a pair of rings that match the pair of capacitor plate rings, each aperture alternating with conductive portions around a circle and the rings being offset from one another. However, Kovacich et al disclose a torque sensor comprising a pair of first and second conductive disks 142, 146 caging a member 136 ( which includes dielectric members as illustrated in Figs. 3 - 5 ) and mounted for rotation with the second half of a torsionally strained element 132, a pair of capacitor plate rings 150, 156 lying in a common plane encircling the first half of the element 132 and juxtaposed with the first conductive disk 142 and an opposed capacitor plate 144 encircling the second shaft half and juxtaposed with the second conductive disk 146 ( See Fig. 7 ) ( See Col. 5, lines 1 - 23 ). Although the disks of Kovacich are not apertured, Takahashi discloses disc members 231 and 232 which are bored at the center and contain apertures 234 and 235, each aperture of the respective conductive disk being arranged in a pair of ring shaped members 24, 25 ( See Fig. 2 ) that serve as variable capacitance elements together with plates 20, 21, each aperture alternating with conductive portions around a circle and the rings being offset from

one another ( See Fig. 3 ) ( See Col. 4, lines 1 - 13 ).

Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify Montagu et al according to the teachings of Kovacich et al and Takahashi for the purposes of, employing a torque sensor having a structural arrangement advantage that limits processing steps ( Col. 6, lines 35 - 37 ), that provides an electrical indication of torsional strain in a member subjected to an applied torque in a manner that provides a high degree of sensitivity and utilizing slits or sectoral apertures to enable a drive shaft to freely rotate therethrough ( See Col. 3, lines 64 - 67 ).

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Regarding claims 2 and 3, in Takahashi, the apertured conductive disks 231 and 232 have identical aperture patterns which are aligned with each other ( See Fig. 2 ).

Regarding claim 7, in Takahashi, under zero torque condition, one half of each of apertures 28, 28' is covered by spokes to provide equal values of capacitance ( See Col. 4, lines 41 - 48 ).

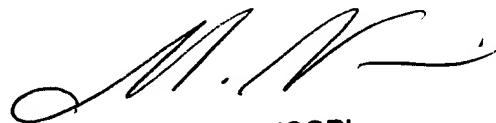
Regarding claim 8, in Takahashi, when applied torque is a maximum in one rotational direction the apertures of one ring are covered and the other ring apertures are minimally covered, with applied maximum torque in the opposite direction the opposite covering of apertures occurs ( See Cols. 4 and 5, lines 62 - 68 and 1 - 20 ).

***Response to Arguments***

6. Applicant's arguments with respect to these claims have been considered but are moot in view of the new grounds of rejection.
7. Any inquiry concerning this communication should be directed to Examiner Octavia Davis at telephone number ( 703 ) 306 - 5896. The examiner can normally be reached on Monday - Thursdays ( 9:00 - 5:00 ), Fridays off.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is ( 703 ) 308 - 0956.

N  
OD/2855



MAX NOORI  
PRIMARY EXAMINER